

WHAT IS CLAIMED IS:

1. A combustible gas sensor comprising: an active element in electrical connection with a measurement circuit, the measurement circuit including a thermistor network to compensate for the effect of changes in ambient temperature to the resistance of the active element.
2. The combustible gas sensor of claim 1 wherein the thermistor network includes a thermistor and at least one resistor.
3. The combustible gas sensor of claim 2 wherein the thermistor network includes a first resistor in series electrical connection with the thermistor and a second resistor in parallel electrical connection with the thermistor.
4. The combustible gas sensor of claim 3 wherein the resistance of the thermistor increases with increasing temperature, the thermistor being in one leg of a bridge circuit and the active element being in another leg of the bridge circuit.
5. The combustible gas sensor of claim 3 wherein the resistance of the thermistor decreases with increasing temperature and the thermistor network is in serial electrical connection with the active element.
6. The combustible gas sensor of claim 1 wherein the geometric surface area of the active element is no greater than approximately  $0.5 \text{ mm}^2$ .
7. The combustible gas sensor of claim 1 wherein the geometric surface area of the active element is no greater than approximately  $0.3 \text{ mm}^2$ .

8. A measurement circuit for use in a combustible gas sensor, the measurement circuit comprising: an active element in electrical connection with a thermistor network adapted to compensate for the effect of changes in ambient temperature to the resistance of the active element.

9. The measurement circuit of claim 8 wherein the thermistor network includes a thermistor and at least one resistor.

10. The measurement circuit of claim 9 wherein the thermistor network includes a first resistor in series electrical connection with the thermistor and a second resistor in parallel electrical connection with the thermistor.

11. The measurement circuit of claim 9 wherein the resistance of the thermistor increases with increasing temperature, the thermistor being in one leg of a bridge circuit and the active element being in another leg of the bridge circuit.

12. The measurement circuit of claim 9 wherein the resistance of the thermistor decreases with increasing temperature and the thermistor network is in serial electrical connection with the active element.

13. The measurement circuit of claim 8 wherein the geometric surface area of the active element is no greater than approximately  $0.5 \text{ mm}^2$ .

14. The measurement circuit of claim 8 wherein heat loss from thermal conduction is less than approximately 10% of the heat generated by a reaction catalyzed at the active element at full scale.

15. A combustible gas sensor comprising: an active element having a geometric surface area no greater than approximately  $0.5 \text{ mm}^2$  in electrical connection with a measurement circuit, the measurement circuit including a compensator that compensates for the effect of changes in ambient temperature to the resistance of the active element without compensating for heat lost by thermal conduction from the active element.

16. The combustible gas sensor of claim 15 wherein the compensator includes a thermistor.

17. The combustible gas sensor of claim 15 wherein the compensator includes a sensor for measuring ambient temperature in communication with processor circuitry.

18. A method of sensing gas comprising the steps of: providing a catalytic active element having a geometric surface area sufficiently small such that the effect upon the output of the active element of heat lost from the active element by thermal conduction is relatively small, and compensating for only the effect of changes in ambient temperature upon the output of the active element.

19. The method of claim 18 wherein heat loss from thermal conduction is less than approximately 10% of the heat generated by a reaction catalyzed at the active element at full scale.

20. The method of claim 18 wherein the geometric surface area of the active element is no greater than approximately  $0.5 \text{ mm}^2$ .